APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,280	07/06/2001	Gang Luo	(9917) NCRC-0051-US	6088

26890 7590 11/03/2005		EXAMINER
JAMES M. STOVER		FLEURANTIN, JEAN B
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ART UNIT	PAPER NUMBER
2162	

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DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
	09/900,280	LUO ET AL.
Office Action Summary	Examiner	Art Unit	
	JEAN B. FLEURANTIN	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2005*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4,7,8,16-19,33 and 41-50* is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *4, 7, 8, 16-19, 33 and 41-50* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This is in response to Applicant(s) arguments filed on 11 August 2005 with respect to claims 4, 7,

8, 16-19, 33 and 41-50.

2.   Claims 4, 7, 8, 16-19, 33 and 41-50 remain pending for examination.

Response to Applicant' Remarks

3.   Applicant's arguments filed 11 August 2005 have been fully considered but they are not

persuasive for the following reasons, see sections A and B.

Claim Rejections - 35 USC § 103

A.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102
> of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject
> matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art
> to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was
> made.

Claims 4, 7, 8, 16-19, 33 and 41-50 are rejected under 35 U.S.C. 103(a) as being unpatentable

over U.S. Patent No. 6,484,159 issued to Mumick et al. (hereinafter "Mumick") in view of Dallan Quass et

al., Making View Self-Maintainable for Data Warehousing, 1996 (hereinafter 'Quass").

As per claim 4, Mulmick discloses a method comprising:

"receiving a first tuple into a base relation at a first node of a parallel database system having

plurality nodes" (see col. 8, lines 5-9), "wherein the first tuple comprises a join attribute and the base

relation is partitioned across the nodes according to an attribute different from the join attribute", (see col.

8, line 15-21);

"identifying second tuples of a second relation", (see figure 6, col. 8, lines 10-51);

"joining the first tuple with the second tuples based on the join attribute to produce join results" (see figure 6, col. 8, lines 10-51);

"storing the join results in a join view" as a view that has been stored is usable, like a table, as an input to a query, such a view termed a materialized view, (see col. 3, lines 20-39), and col. 5, lines 14-40.

Mumick does not explicitly disclose the storing the first tuple in an auxiliary relation at a second node of the parallel database system, wherein the auxiliary relation is portioned across the nodes of the database system according to the join attribute. However, Quass discloses steps of materializing the auxiliary views to represent a significant savings over materializing the base relations, (see Quass page 159, col. 2, lines 5-23). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combined teachings of Mumick and Quass with auxiliary relation. Such a modification would allow the teachings of Mumick and Quass to improve the reliability of the auxiliary relation for materialized view, and to provide fast access to the integrated data, regardless of the availability of the data sources, (see Quass page 158, col. 1, lines 2-4).

As per claims 7 and 18, the limitations of claims 7 and 18 are rejected in the analysis of claim 4, and these claim are rejected on that basis.

As per claims 8 and 19, in addition to claim 4, Mumick further discloses "receiving a third tuple into the base relation", (see col. 3, lines 32-36);

"determining that a join view definition includes a condition on one of the attributes of the third tuple", (see col. 3, lines 29-36);

"determining that the condition is not met by the one of the attributes of the third tuple", (see col. 8, lines 52-39).

As per claim 16, in addition to claim 4, Mumick further discloses "store a join view to store join results of a join of at least firs and second base relations based on a join condition including a first

attribute of the first base relation and a second attribute of the second base relation", (see col. 8, lines 22-43).

As per claim 33, the limitations of claim 33 are rejected in the analysis of claim 4, and this claim is rejected on that basis.

As per claim 17, Mumick further discloses, in addition to claim 4, "compare the second attributes of the second tuples with the first attribute of the first tuple to produce the join results for updating the join view" as two or more tables are merged to form a new table or view, the new table or view has a tuple corresponding to each value of a selected attributes present in any original table, (see col. 9, lines 16-20), and see col. 10, lines 30-36.

As per claim 41, in addition to claim 4, Mumick further discloses, "a controller adapted to update the join view using at least the first auxiliary relation" as propagation of the change table is particularly efficient when the change table depends only on the changes to the base relation, (see col. 10, lines 38-45),

"the join view to store results of a join of the base relations based on a query containing a select clause and a join condition" as query definitions include more queries, which are specifications of operations that are to be performed more tables in the database on more materialized views (see col. 3, lines 25-39), "the select clause specifying one or more attributes of the first base relation" as the materialized view corresponding to each value of at least one select attribute in any of the plurality tables, (see col. 2, lines 20-24).

As per claim 42, in addition to claims 4 and 41, Mumick does not explicitly disclose wherein the first attribute is a key of the first base relation and the second attribute is a foreign key of the second base relation that references the first attribute, and the controller to, in response to detecting that the first attribute is a key of the first relation and that the second attribute is a foreign key of the second base

relation that references the first attribute. However, Quass discloses a views involving chain joins where the joins conditions are between a foreign key, joined to a set of relations, (see Quass page 162, col. 1, lines 1-22), and see Quass page 159, col. 1, lines 18-33). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combined teachings of Mumick and Quass with wherein the first attribute is a key of the first base relation and the second attribute is a foreign key of the second base relation that references the first attribute. Such modification would allow the teachings of Mumick and Quass to improve the reliability of the auxiliary relation for materialized view, and to provide fast access to the integrated data, regardless of the availability of the data sources, (see Quass page 158, col. 1, lines 2-4).

As per claims 43-50, the limitations of claim 43-50 are rejected in the analysis of claims 4 and 42, and these claims are rejected on that basis.

B.   In response to applicant's argument, pages 8 and 9, that "no motivation or suggestion existed at the time of the invention for combining the teachings of Mumick and Quass; and (2) even if combined, the hypothetical combination of Mumick and Quass fails to teach or suggest all elements of the claimed invention." The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Mumick does not explicitly disclose the storing the first tuple in an auxiliary relation at a second node of the parallel database system, wherein the auxiliary relation is portioned across the nodes of the database system according to the join attribute. However, Quass discloses steps of materializing the auxiliary views to represent a significant savings over materializing the base relations, (see Quass page 159, col. 2, lines 5-23). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combined teachings of Mumick and Quass with auxiliary relation. Such a modification would allow the

teachings of Mumick and Quass to improve the reliability of the auxiliary relation for materialized view, and to provide fast access to the integrated data, regardless of the availability of the data sources, (see Quass page 158, col. 1, lines 2-4).

Applicant(s) stated that "The Office Action conceded that Mumick does not teach storing the first tuple in an auxiliary relation at a second node of the parallel database system, where the auxiliary relation is partitioned across the nodes of the parallel database system according to the join attribute. Rather, the Office Action erroneously relied upon Quass as teaching the missing element. Although Quass teaches the use of "auxiliary views" in a database system for self-maintaining materialized views, the auxiliary views of Quass are not partitioned across the nodes of a database system according to a join attribute. In fact, no mention whatsoever is made of a parallel database system in Quass. Quass addresses a different issue than the present invention." It is submitted the Office Action indicates that "Mumick does not explicitly disclose the storing the first tuple in an auxiliary relation at a second node of the parallel database system, wherein the auxiliary relation is portioned across the nodes of the database system according to the join attribute. However, Quass discloses steps of materializing the auxiliary views to represent a significant savings over materializing the base relations, (see Quass page 159, col. 2, lines 5-23)." Thus this allegation is moot.

Furthermore, the Applicant(s) admit(s), page 9, paragraph 2, that Quass teaches the use of "auxiliary views".

As per Applicant's argument on page 8, that "no motivation or suggestion existed at the time of the invention for combining the teachings of Mumick and Quass; and (2) even if combined, the hypothetical combination of Mumick and Quass fails to teach or suggest all elements of the claimed invention." Respectfully, Applicant(s) appear(s) to misinterpret the guidance given under MPEP 2142. In particular, references are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures, *In re Bozek,* 163 USPQ 545 (CCPA 1969).

There are numerous court decisions supporting the position given above. The issues of obviousness is not determined by what the references expressly state but what they would reasonably suggest to one of ordinary skill in the art, as supported by decisions in *In re Delisle 406 Fed 1326, 160 USPQ 806; In re Kell, Terry and Davis 208* USPQ 871; and *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ 2d 1596, 1598 (Fed. Cir. 1988)(citing *In re Ialu,* 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1988)). Further, it was determined in *In re Lamberti et al, 192 USPQ 278 (CCPA) that:*

  (I)   obviousness does not require absolute predictability;

  (II)   non-preferred embodiments of prior art must also be considered; and

  (III)   the question is not express teaching of references, but what they would suggest.

According to *In re Jacoby,* 135 USPQ 317 (CCPA 1962), the skilled artisan is presumed to know something more about the art than only what is disclosed in the applied references. In *In re Bode*, 193 USPQ 12 (CCPA 1977), every reference relies to some extent on knowledge of persons skilled in the art to complement that which is disclosed therein.

In response to applicant's argument, page 9, paragraph 3, that "Quass has nothing to do with partitioning a base relation and auxiliary relation across nodes of a database system in different ways, as recited in claim 4. Note that claim 4 recites that a base relation is partitioned across nodes according to an attribute different from a join attribute, while the auxiliary relation is partitioned across nodes of the database system according to the join attribute. Because Quass fails to teach the element of claim 1 conceded to be missing from Mumick, it is respectfully submitted that even if Mumick and Quass can be combined, the reference teachings fail to teach or suggest all elements of the claim." The for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

MPEP 2111 Claim Interpretation; Broadest Reasonable Interpretation

During patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification" Applicant always has the opportunity to amend the claims during prosecussion and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 162 USPQ 541,550-51 (CCPA 1969). The court found that applicant was advocating ... the impermissible importation of subject matter from the specification into the claim. See also In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997) (The court held that the PTO is not required, in the course of prosecution, to interpret claims in applications in the same manner as a court would interpret claims in an infringement suit. Rather, the "PTO applies to verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definition or otherwise that may be afforded by the written description contained in application's specification.").

The broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. In re Cortright, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999).

For the above reasons, it is believed that the last Office Action was proper.

Conclusion

4.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

CONTACT INFORMATION

5.   Any inquiry concerning this communication or earlier communications from the examiner should

be directed to JEAN B. FLEURANTIN whose telephone number is 571 – 272-4035. The examiner can

normally be reached on 7:05 to 4:35.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

JOHN E BREENE can be reached on 571 – 272-4107. The fax phone number for the organization where

this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be obtained from

either Private PAIR or Public PAIR. Status information for unpublished applications is available through

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at 866-217-9197 (toll-free).

Jean Bolte Fleurantin

Patent Examiner

Technology Center 2100

October 28, 2005
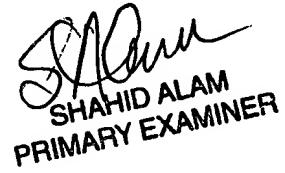
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